

GROWTH RING CHARACTERISTICS IN AN ARID ZONE CONIFER

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SUMMARY

Growth rings in logs of *Callitris columellaris* F.v.M. from near Woomera have been studied, and some of their characteristics correlated with features of rainfall records. Evidence is presented that these trees produced about one ring per year, in some years more and in some years, none.

Callitris columellaris F.v.M. is an Australian coniferous tree. It ranges widely² throughout Australia, and extends into arid regions, where it usually grows in stands limited to local niches, but is sufficiently abundant on some sheep stations to provide logs and rails for buildings and yards. In March, 1965, three trees felled for posts were observed near "The Pines" station, 10 miles east of Woomera in central South Australia. They were of matched size, from the same stand, and appeared approximately contemporaneous. Transverse sections were taken from their butts, and growth ring characteristics examined in these arid zone conifers which grew in an area where average rainfall is less than 7 inches per year (Table 1).

TABLE 1

Mean monthly rainfall at Pinba, South Australia, over a 30-year period (1931-61).

Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
0.66	0.98	0.43	0.39	0.62	0.61	0.49	0.57	0.41	0.61	0.52	0.47	6.76

(Data from C.B.M. records)

In the laboratory, the sections were ground flat then polished. Observed stereoscopically at 40X magnification, growth rings were clearly observable, the three trees exhibiting 77, 83 and 90 respectively. All sections were eccentric, so band widths were measured along the maximum radius. Fig. 1 presents band-width data.

Each band-width graph shows two sorts of fluctuations, a basal type fluctuating over widths up to about 3 mm., with a mean about 1.5 mm., and superimposed on this, outstanding amplitudes at three positions *a*, *b* and *c*. The characteristics of these wide-band regions are consistent over all trees. Region

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²Mrs. C. Offler¹ has pointed out that this binomial covers specimens described under *C. intratropica* Benth. & Hook. f. (1880); *C. hugelli* (Carr.) Franco (1952) [Synonym—*C. glauca*, Baker & Smith (1908) nom. illeg.]; and *C. columellaris* F.v.M. (1866) [Synonym—*C. arenosa* Cunningham, ex Baker & Smith (1910) nom. illeg.]. Although these 3 species are maintained by some authors (e.g. Garden), Blake considers them as a single species with a disjunct distribution.